MNM Fatal 2015-03

- Fall of Roof or Back
- January 21, 2015 (Missouri)
- Lead Ore Mining
- Ground Support
- 54 years old
- 4 years of experience

Overview

On January 21, 2015, John D. Hoodenpyle, Mechanical Scaler, age 54, was killed when a section of rock fell from the back/roof, collapsing the protective structure on a scaling machine. Hoodenpyle was operating a mechanical scaler (scaler) in the RC3PO Northeast drift when approximately 175 tons of material fell, covering the machine.

The accident occurred due to management's failure to identify hazardous ground conditions and to design and install an adequate support system that controlled the ground in the RC3PO Northeast area, where persons worked or traveled in performing their assigned tasks. Management did not ensure that miners scaled the roof from a safe location.

Root Causes

The investigators conducted a root cause analysis and identified the following root causes:

Root Cause: Management failed to establish policies and procedures for identifying hazardous ground conditions. Prior to the accident, miners were not required to drill test holes at each intersection in order to identify adverse ground conditions.

Corrective Action: Management established new policies and procedures for identifying hazardous ground conditions and trained miners to drill test holes at the beginning of each drilling cycle to identify any separation in the roof strata. The test holes are required to be drilled, as near to vertical as possible, and shall extend no less than one foot longer than the support installed. The hole will be visibly marked/ identified and the results of the examination will be recorded on the workplace examination record.

Root Causes (cont.)

Root Cause: Management failed to design and install adequate support to control the roof in the disrupted bedding of the brecciated zone of the back (roof) in the RC3PO Northeast area where persons worked or traveled in performing their assigned tasks.

Corrective Action: Management established new policies and procedures requiring test holes to be drilled at the beginning of each drilling cycle to identify any separation in the roof strata. The test holes are required to be drilled, as near to vertical as possible, and shall extend no less than one foot longer than the support installed. The hole will be visibly marked/ identified and the results of the examination will be recorded on the workplace examination record.

These new policies and procedures require the roof and ribs to be supported using six-foot long, fully-grouted, No. 7 resin bolts, or bolts with a greater strength and anchorage capacity within 30 feet of the face of the drift in areas of disrupted bedding in breccia zones. In areas with stable back conditions, bolts will be kept up to within 100’ of the work face. In single development headings, with stable back conditions, bolts will be kept up to within 200’ of the work face. Management will determine the type of roof support to be installed that will adequately support the roof. All miners were trained in these new policies and procedures.

Root Causes (conti.)

Root Cause: Management failed to ensure that miners performed scaling operations from a safe location that would not expose them to falling material.

Corrective Action: Management established a new procedure that requires scaling operations to be conducted from a safe location that does not expose miners to falling material. The new roof control procedures requiring limited distances for unbolted areas will ensure a safe location for scaling operations. Miners were trained in this new procedure.

Best Practices

- Establish safe work procedures that ensure a safe work location for miners conducting scaling operations, and train all miners to recognize and understand these procedures.
- Discuss safe work procedures before beginning work. Identify and control all hazards associated with the work to be performed and the methods to properly protect miners.
- Always examine and test areas for loose ground before starting to work, after blasting, and as ground conditions warrant.
- Identify and scale loose material from a safe position which will not expose miners to falling material.
- Test for loose material frequently during work activities. Be alert to any change of ground conditions.
- Install ground support in roof and ribs where conditions warrant.
- Use equipment with a reach that reduces the possibility of the equipment being struck by falling material.